

## HAZREP EXAMPLE

P 221130Z OCT 01  
FM HMM ONE NINE NINE  
TO CNO WASHINGTON DC//N78F//  
CMC WASHINGTON DC//A/SD//  
COMNAVSAFECEN NORFOLK VA//00/10/11/FILE//  
COMNAVAIRSYSCOM PATUXENT RIVER MD//4.1/5.0F//  
MAG NINE NINE  
ALL SEAKNIGHT HELICOPTER ACTIVITIES  
INFO NAVAVNDEPOT CHERRY POINT NC//JJJ//  
BT

**ACTION**  
**NEXT ENDORSER**  
**CAD**  
**ACTION - NAVAIR**

UNCLAS FOUO //N03750// THIS IS A GENERAL USE NAVAL AVIATION HAZARD REPORT  
HMM-199, 01-02, 21 OCT 01, CH-46E, 154999REPORT SYMBOL OPNAV 3750-19  
MSGID/GENADMIN/HMM-199/099/OCT//

SUBJ/AVIATION HAZREP//  
REF/A/DOC/OPNAVINST 3750.6R//  
AMPN/REF A IS THE NAVAL AVIATION SAFETY PROGRAM.//  
POC/MYERS, JAN/LCDR/INST/NPGS MONTEREY/TEL: 831-656-2581, DSN 878-2581, POTS  
XXX-XXXX/-E-MAIL: JPMYERS@NPS.NAVY.MIL//

RMKS/1. THIS REPORT CONCERNS A SEVERE HAZARD TO NAVAL AVIATION.

RAC 2. MAG NINE NINE ENDORSEMENT REQUESTED IAW REF A.

SUMMARY: FUEL ACCESS PANEL BALISTIC FOAM CONTAMINATED FUEL DUE TO  
CHEMICAL BREAKDOWN FROM FUEL IMMERSION AS A RESULT OF IMPROPER  
INSTALLATION.

2. NARRATIVE: ON POST FLIGHT TURN-AROUND, CREW CHIEF DISCOVERED A POPPED  
NUMBER 2 AIRFRAME FUEL FILTER. A FUEL SAMPLE WAS DRAWN WHICH CONTAINED  
VISIBLE CONTAMINATION. THE AIRFRAME FUEL FILTER WAS INSPECTED AND FOUND  
TO BE CLOGGED WITH A THICK RUBBER-LIKE MATERIAL. THE FUEL CELL WAS OPENED  
AND IT WAS DISCOVERED THAT THE FUEL CELL INNER ACCESS PANEL IS BENEATH  
THE COMPOSITE OUTER SKIN OF THE FUEL CELL AND IDENTIFICATION OF INCORRECT  
INSTALLATION COULD ONLY BE DISCOVERED BY REMOVING THE OUTER STUB WING  
ACCESS PANEL. PROTECTIVE BALLISTIC FOAM IS CONTAINED IN A RUBBER SHEATH,  
WHICH IS ATTACHED TO THE TOP OF THE INNER ACCESS PANEL. THE INVERTED  
INSTALLATION PLACED THE FOAM AND IT'S SHEATH FACE DOWN AND IN DIRECT  
CONTACT WITH THE FUEL IN THE CELL CAUSING THE RUBBER SHEATH TO  
DETERIORATE AND SPIT OPEN. THIS ALLOWED THE FOAM TO DISLODGE INTO THE  
FUEL CELL WHERE THE FUEL BROKE IT DOWN. FOAM PARTICLES SUBSEQUENTLY  
CLOGGED THE AIRFRAME FUEL FILTER. FURTHER INSPECTION REVEALED THE  
NUMBER 1 FUEL ACCESS PANEL WAS ALSO INSTALLED INVERTED. THE FUEL HAD  
ALSO BROKEN DOWN THE NUMBER 1 FUEL CELL'S SHEATH, BUT IN THIS FUEL CELL  
THE TOP OF THE SHEATH HAD COMPLETELY SEPARATED FROM THE ACCESS PANEL.  
THIS 12" BY 18" SHEET OF RUBBER WAS FOUND FLOATING IN THE FUEL CELL. THERE  
WAS NOTHING TO PREVENT THE SHEATH OR A LARGER PIECE OF THE BALLISTIC  
FOAM FROM COVERING THE FUEL PICK-UP LINE ENTIRELY. THE ACCESS PANELS ARE  
NOT MARKED TO INDICATE WHICH SIDE SHOULD BE INSTALLED UP.  
ORGANIZATIONAL MAINTENANCE ACTIVITIES ARE REQUIRED TO RETAIN HISTORICAL  
MAGS FOR A PERIOD OF SIX MONTHS. IN THIS CASE, RECORDS INDICATE NO WORK  
PERFORMED ON THE FUEL CELL SINCE NOV 00. THE AIRCRAFT WAS RECEIVED FROM  
THE SEAKNIGHT NADEP ON 11 AUG 00. NADEP CONFIRMED THAT FUEL CELLS ARE  
BROKEN DOWN FOR EVERY REWORK. NADEP'S QA DEPT VISUALLY INSPECTS EACH  
FUEL CELL AFTER REWORK BUT DOES NOT OBSERVE THE ACCESS PANEL

INSTALLATION FOLLOWING THE INSPECTION. WITH THE GAP BETWEEN AIRCRAFT DELIVERY IN AUG 00 AND MAINTENANCE HISTORICAL RECORDS FROM NOV 00, THERE IS NO WAY TO POSITIVELY DETERMINE WHEN THE INCORRECT INSTALLATION OCCURRED.

3. CATEGORY: INTENT FOR FLIGHT DID NOT EXIST.

4. DATA:

A. REPORTING ACTIVITY:

- (1) NAME: HMM-199
- (2) UIC: 98765
- (3) PARENT NAME: N/A
- (4) PARENT UIC: N/A

B. AIRCRAFT OR UAV:

- (1) TMS: CH-46E
- (2) BUNO: 154999
- (3) MODEX AND SIDE NUMBER: GX-99
- (4) CUST: HMM-199
- (5) CUST UIC: 98765
- (6) ORIGIN: MCAS MIRAMAR
- (7) MISSION: POST FLIGHT TURN-AROUND INSPECTION
- (8) TMR: 1A1
- (9) FLIGHT PLAN: N/A
- (10) DEST: N/A
- (11) EVOLUTION:

- (A) PHASE OP: PARKED
- (B) HDG: N/A
- (C) KIAS: N/A
- (D) AGL: 0 FT
- (E) ELEVATION: 125
- (F) MSL: N/A
- (G) ROUTE: N/A

(12) PERSONNEL:

- (A) SOULS: N/A
- (B) CREW: N/A
- (1) CREW DUTY: CREW CHIEF

- (A) RANK/RATE: SGT
- (B) DESIG: 6172
- (C) SVC: USMC
- (D) ORG: HMM-199
- (E) STATUS: ON DUTY
- (F) INJURIES: NO INJURY
- (G) NVD: NOT USED
- (H) EXPERIENCE: N/A
- (1) TOTAL TIME: N/A
- (2) MODEL TIME: N/A
- (3) PILOT TIME: N/A
- (4) PILOT MODEL TIME: N/A
- (5) TOTAL LANDINGS: N/A
- (6) TOTAL MODEL LANDINGS: N/A
- (7) TOTAL EMBARKED LANDINGS: N/A
- (8) TOTAL EMBARKED MODEL LANDINGS: N/A

(I) QUALS: N/A

- (C) PASSENGERS: N/A

(13) LIGHTING:

- (A) LANDING LIGHT: N/A
- (B) STROBE LIGHT: N/A
- (C) OTHER LIGHTING: N/A

- (14) EQPT:
  - (A) MODEL: FUEL ACCESS PANEL
  - (B) MAKE: N/A
  - (C) PART NO: A15PS432-3
  - (D) EQPT CODE: N/A
  - (E) CONFIG: N/A
  - (F) WUC: 4621300
  - (G) DAMAGE: BALLISTIC FOAM DETERIORATED WITHIN FUEL CELL
  - (H) RMKS: FUEL ACCESS PANEL WAS INSTALLED INVERTED
- (15) OFP: N/A
- (16) FCS: N/A
- C. OTHER PERSONNEL: N/A
- D. OTHER EQPT: N/A
  - (1) MODEL: N/A
  - (2) MAKE: N/A
  - (3) PART NO: N/A
  - (4) EQPT CODE: N/A
  - (5) CONFIG: N/A
  - (6) WUC: N/A
  - (7) DAMAGE: N/A
  - (8) RMKS: N/A
- E. ENVIRONMENT:
  - (1) DATE: 21 JAN 01
  - (2) TIME: 2230 L
  - (3) ZONE: ROMEO
  - (4) CONDN: NIGHT
  - (5) LOCN: SAN DIEGO, CA
    - (A) LATD: 340030 N
    - (B) LONG: 0770030 W
    - (C) STATE: CALIFORNIA
    - (D) COUNTRY: USA
    - (E) FACILITY: MCAS MIRAMAR
    - (F) NAVAID: K
    - (G) BRG: 350 BEARING
    - (H) DIST: 0.7 NM
    - (I) AIRSPACE: ON DECK FLIGHT LINE
  - (6) WX AS BRIEFED.
    - (A) BRIEFED BY: NOT APPLICABLE.
    - (B) BRIEFING UTILIZATION: NOT APPLICABLE.
    - (C) AIR TEMP: 77 F
    - (D) RELATIVE HUMIDITY: 63 PERCENT
    - (E) DEWPOINT: 68 F
    - (F) WATER TEMP: N/A
    - (G) WIND DIRECTION: 0
    - (H) WIND VELOCITY: 0
    - (I) WIND GUSTS: NONE FORECAST
    - (J) CEILING: 10,000 BKN
    - (K) SKY CONDITION: 10,000 BKN
    - (L) HORIZON: VISIBLE
    - (M) VISIBILITY: 7
    - (N) OBSTRUCTIONS TO VISION: N/A
    - (O) ALTIMETER SETTING: 29.92
    - (P) ICING: NONE FORECAST
    - (Q) PRECIPITATION: N/A
    - (R) EXTREME WX: N/A
    - (S) BRIEFING ACCURACY: SUBSTANTIALLY CORRECT

(7) WX - PREVAILING.

- (A) AIR TEMP: 77 F
- (B) RELATIVE HUMIDITY: 63 PERCENT
- (C) DEWPOINT: 67 F
- (D) WATER TEMP: N/A
- (E) WIND DIRECTION: 0
- (F) WIND VELOCITY: 0
- (G) WIND GUSTS: NONE FORECAST
- (H) CEILING: 10,000 BKN
- (I) SKY CONDITION: 10,000 BKN
- (J) HORIZON: VISIBLE
- (K) VISIBILITY: 7
- (L) OBSTRUCTIONS TO VISION: N/A
- (M) ALTIMETER SETTING: 29.93
- (N) ICING: NONE PRESENT
- (O) PRECIPITATION: N/A
- (P) EXTREME WX: N/A
- (Q) RUNWAY CONDITION: NOT APPLICABLE
- (R) METEOROLOGICAL COMMENTS: N/A

(8) RMKS:

5. SPECIAL DATA: N/A

6. ANALYSIS:

A. EVIDENCE: FUEL CIRCUIT BREAKER DISCOVERED POPPED ON NUMBER 2 AIRFRAME FUEL FILTER. FUEL SAMPLE CONTAINED VISIBLE CONTAMINATION. FUEL FILTER WAS CLOGGED WITH RUBBER-LIKE MATERIAL. OUTER STUB WING ACCESS PANEL WAS REMOVED REVEALING IMPROPER INSTALLATION (INVERTED) OF INNER FUEL ACCESS PANEL. FURTHER INSPECTION REVEALED NUMBER 1 INNER FUEL ACCESS PANEL WAS ALSO INSTALLED INVERTED. NUMBER 1 FUEL ACCESS PANEL BALLISTIC FOAM WAS FLOATING INSIDE THE FUEL CELL.

- ANALYSIS: INVERTED INSTALLATION PLACED THE FOAM AND IT'S SHEATH FACE DOWN AND IN DIRECT CONTACT WITH THE FUEL IN THE CELL CAUSING THE RUBBER SHEATH TO DETERIORATE AND SPLIT OPEN. THE FOAM EVENTUALLY WAS CHEMICALLY BROKEN DOWN INTO SMALLER PIECES AND PARTICLES THAT CLOGGED THE FUEL FILTER AND WAS VISIBLE IN A FUEL SAMPLE.

- MATERIAL FACTOR – FUEL ACCESS PANEL BALLISTIC FOAM CONTAMINATED FUEL DUE TO CHEMICAL BREAKDOWN FROM FUEL IMMERSION AS A RESULT OF IMPROPER INSTALLATION.

COMP: BALLISTIC FOAM

MODE: CONTAMINATED FUEL

AGENT: CHEMICAL BREAKDOWN

AGENT: FUEL IMMERSION

AGENT: IMPROPER INSTALLATION.

B. EVIDENCE: ORGANIZATIONAL RECORDS CANNOT CONFIRM THAT THE SQUADRON WORKED ON THESE PANELS SINCE THE AIRCRAFT WAS RECEIVED FROM NADEP CHERRY POINT 5 MONTHS AGO. NADEP QA/CDI CONFIRMED THAT FUEL CELLS ARE BROKEN DOWN FOR EVERY REWORK INSPECTION, BUT THEY DO NOT OBSERVE THE ACCESS PANEL RE-INSTALLATION FOLLOWING THE INSPECTION.

- ANALYSIS: THERE IS NO CONCLUSIVE WAY TO POSITIVELY IDENTIFY WHICH ACTIVITY MADE THE INSTALLATION ERROR. MAINTENANCE MANUAL DOES NOT SUFFICIENTLY DESCRIBE HOW THE PANELS ARE TO BE INSTALLED.

- MAINTENANCE FACTOR – NADEP PERSONNEL INSTALLED FUEL PANEL INVERTED DUE TO INADEQUATE MAINTENANCE INSTRUCTIONS.

- MAINTENANCE FACTOR – SQUADRON MAINTENANCE PERSONNEL INSTALLED FUEL PANEL INVERTED DUE TO INADEQUATE MAINTENANCE INSTRUCTIONS.

WHO: MAINTENANCE PERSONNEL

WHAT: FAILED TO INSTALL PANEL CORRECTLY

WHY: INADEQUATE MAINTENANCE INSTRUCTIONS

7. CONCLUSIONS: FAILURE TO INSTALL FUEL ACCESS PANEL CORRECTLY CAN LEAD TO OBSTRUCTION OF FUEL LINES AND FUEL STARVATION OF THE ENGINE WHICH COULD RESULT IN LOSS OF AIRCRAFT AND PERSONNEL.

8. RECOMMENDATIONS:

A. FOR HMM-199: CONDUCT A ONE-TIME INSPECTION OF FUEL ACCESS PANELS TO ENSURE PROPER INSTALLATION. ACTION IN WORK.

B. FOR ALL SEAKNIGHT SQUADRONS: CONDUCT ONE TIME INSPECTION OF FUEL ACCESS PANELS TO ENSURE PROPER INSTALLATION.

C. FOR COMNAVAIRSYSCOM:

(1) INSTRUCT ALL SEAKNIGHT SQUADRONS TO CONDUCT ONE TIME INSPECTION OF FUEL ACCESS PANELS VIA RAMEC MESSAGE.

(2) INSTRUCT ALL SEAKNIGHT ACTIVITIES TO MARK "THIS SIDE UP" OR WORDS TO THAT EFFECT ON RUBBER SHEATH OF THESE PANELS.

(3) DIRECT SEAKNIGHT NADEP TO INCLUDE PROPER INSTALLATION OF FUEL ACCESS PANELS AS PART OF QA INSPECTION OF FUEL CELLS. (SEE REMARKS BELOW).

9. REMARKS: SEAKNIGHT NADEP HAS ALREADY BEEN ALERTED TO THIS HAZARD AND MODIFIED QA'S INSPECTION OF THE FUEL CELLS TO INCLUDE ACCESS PANEL INSTALLATION. POINT OF CONTACT AT SEAKNIGHT NADEP IS MR. TEAM PLAYER, DSN 555-7494. DELAY IN TRANSMITTING THIS HAZREP DUE TO REQUIRED INVESTIGATION AND COORDINATION WITH NADEP.

10. CO'S ENDORSEMENT: THE AIRCRAFT'S FUEL FILTRATION SYSTEM WORKED AS ADVERTISED AND ALERTED THE AIRCREW TO THIS HAZARD BEFORE IT BECAME AN INFLIGHT EMERGENCY. WITH LARGE PIECES OF RUBBER SHEET AND DETERIORATING BALLISTIC FOAM FLOATING INTO THE FUEL CELL THE POTENTIAL FOR CATASTROPHIC RESULTS CERTAINLY EXISTED. ATTENTION TO DETAIL BY OUR MAINTENANCE PERSONNEL THROUGH THE FUEL SURVEILLANCE PROGRAM BROKE THIS CHAIN OF EVENTS AND PREVENTED AN UNDESIRABLE OUTCOME. BY HEIGHTENING OUR OWN AWARENESS TO THIS PROBLEM AND ALERTING THE NADEP AND OTHER CH-46 SQUADRONS TO OUR DISCOVERY, WE HAVE HOPEFULLY ELIMINATED A POSSIBLE RECURRENCE OF THESE EVENTS.//

BT